

CLAIMS

What is claimed is:

1. A rectenna solar-battery hybrid panel comprising:

a plurality of solar battery cells for receiving sunlight and converting the sunlight into electricity;

a plurality of microwave receiving antenna elements for receiving microwaves transmitted through space; and

a rectifying circuit for rectifying the microwaves received by the microwave receiving antenna elements; whereby

electric power is obtained from output of the solar battery cells and the rectifying circuit.

2. A rectenna solar-battery hybrid panel as recited in claim 1, further comprising a transparent base, wherein

the plurality of solar battery cells is provided inside the base, the plurality of microwave receiving antenna elements is provided on the front side of the base, and the rectifying circuit is provided on the back side of the base.

3. A rectenna solar-battery hybrid panel as recited in claim 1, further comprising a transparent base, wherein

the plurality of solar battery cells and the plurality of microwave receiving antenna elements are provided inside the base, and the rectifying circuit is provided on the back side of the base.

4. A rectenna solar-battery hybrid panel as recited in claim 1, further comprising:

a transparent base; and

a substrate provided on one of the faces of the base; wherein

the plurality of solar battery cells is provided inside the base, and the plurality of microwave receiving antenna elements and the rectifying circuit are provided on

either the front or back side of the substrate.

5. A rectenna solar-battery hybrid panel as recited in claim 1, further comprising:

- a transparent base provided with the plurality of solar battery cells; and
- a substrate in film form, provided on one of the sides of the base, and provided with the plurality of microwave receiving antenna elements and the rectifying circuit.

6. A hybrid solar photovoltaic generation system comprising:

- a bus for controlling an artificial satellite;
- a mission module for performing observation as well as communication using the artificial satellite; and

- a rectenna solar-battery hybrid panel including a plurality of solar battery cells for receiving sunlight and converting the sunlight into electricity, a plurality of microwave receiving antenna elements for receiving microwaves transmitted through space, and a rectifying circuit for rectifying the microwaves received by the microwave receiving antenna elements, so as to supply to the bus and the mission module electric power generated by the rectenna solar-battery hybrid panel.

7. A hybrid solar photovoltaic generation system comprising:

- a set of hybrid panels configured by arranging a plurality of rectenna solar-battery hybrid panels that each includes a plurality of solar battery cells for receiving sunlight and converting the sunlight into electricity, a plurality of microwave receiving antenna elements for receiving microwaves transmitted through space, and a rectifying circuit for rectifying the microwaves received by the microwave receiving antenna elements;

- electric-power-control equipment for combining electric power outputted from the set of hybrid panels; and

- a transmission line for supplying to an electric-power network electric power combined by and outputted from the electric-power-control equipment.

8. A hybrid solar photovoltaic generation system comprising:

a rectenna solar-battery hybrid panel, installed in a building, including a plurality of solar battery cells for receiving sunlight and converting the sunlight into electricity, a plurality of microwave receiving antenna elements for receiving microwaves transmitted through space, and a rectifying circuit for rectifying the microwaves received by the microwave receiving antenna elements; and

electric-power-control equipment for, when the electric-power supply from the rectenna solar-battery hybrid panel does not meet the electric-power demand inside the building, supplying to the building from an existing electric-power network the electric-power shortfall and for, when electric-power supply from the rectenna solar-battery hybrid panel exceeds the electric-power demand inside the building, supplying to the existing electric-power network the surplus electric power from the rectenna solar-battery hybrid panel.